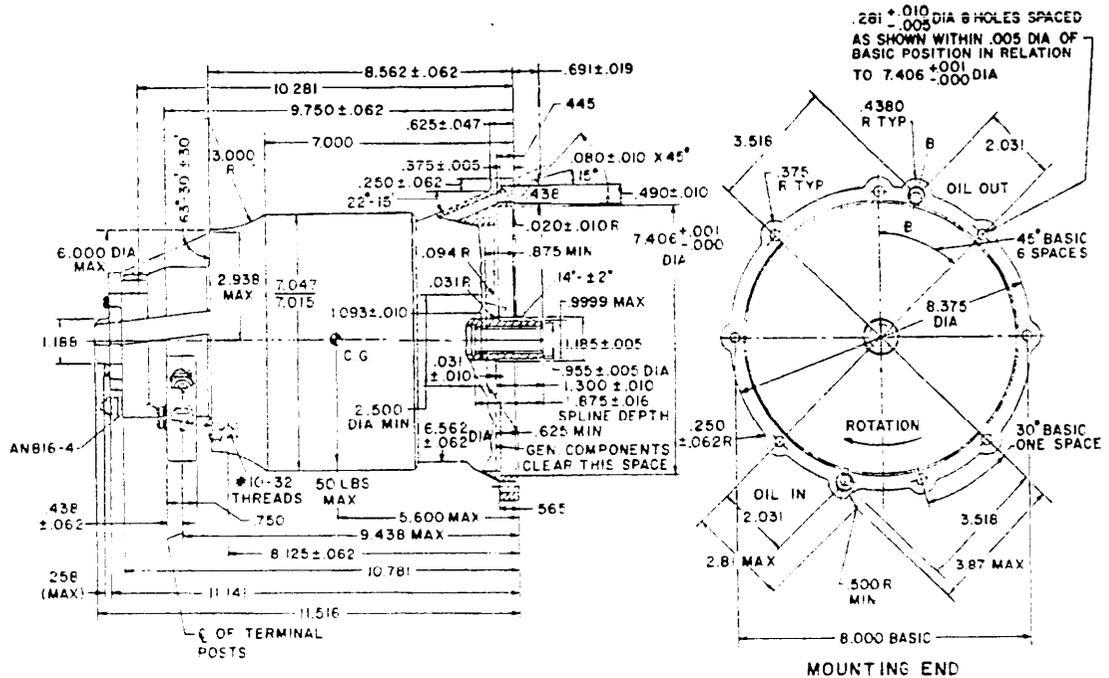
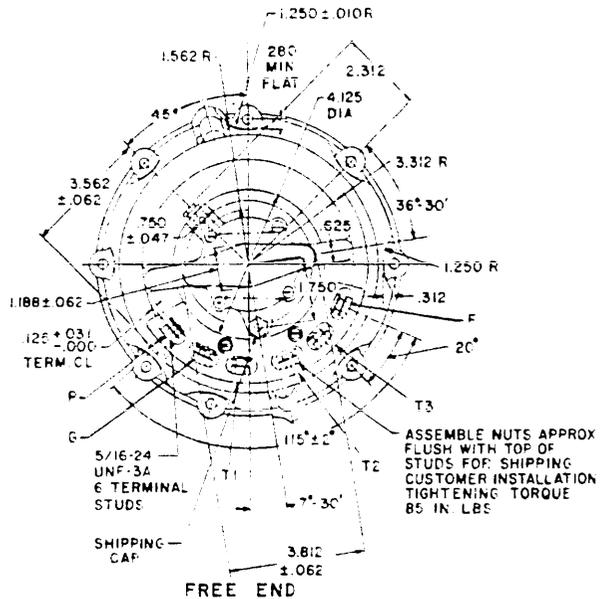


FED. SUP CLASS
6115



SPLINE DATA

22 TEETH, 32/64 PITCH, 30° PRESSURE ANGLE, FLAT ROOT SIDE FIT, ROCKWELL C° 38-43, .687 PITCH DIA, 716+.002 ROOT DIA., 7125 MIN T I TOOTH FORM INSIDE THIS DIA, 656+.005 INSIDE DIA, .0490+.002 TOOTH WIDTH, CONCENTRIC WITH .9999+.0000 DIA, WITHIN .003 TIR



GENERATOR
PN MS90302-3

ⓑ - REVISED & REDRAWN

Department of the Navy and shall be used by that activity. All other military activities are required to employ this standard where suitable.

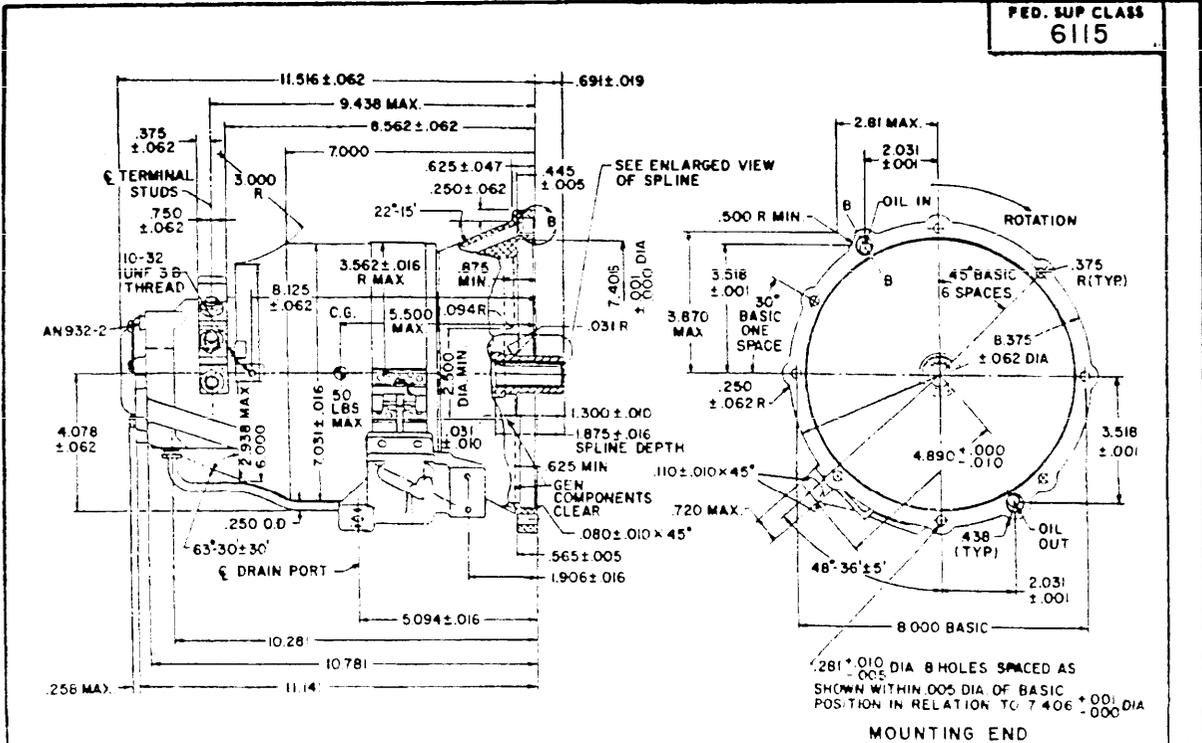
P.A. NAVY - AS Other Cust	TITLE GENERATOR SYSTEM, ALTERNATING CURRENT, BRUSHLESS 30 KVA F-4 AIRCRAFT	MILITARY STANDARD
		MS90302(AS)
PROCUREMENT SPECIFICATION MIL-G-21480	SUPERSEDES:	SHEET 1 OF 9

DD FORM 672-1 (Limited coordination) 1 MAR 72

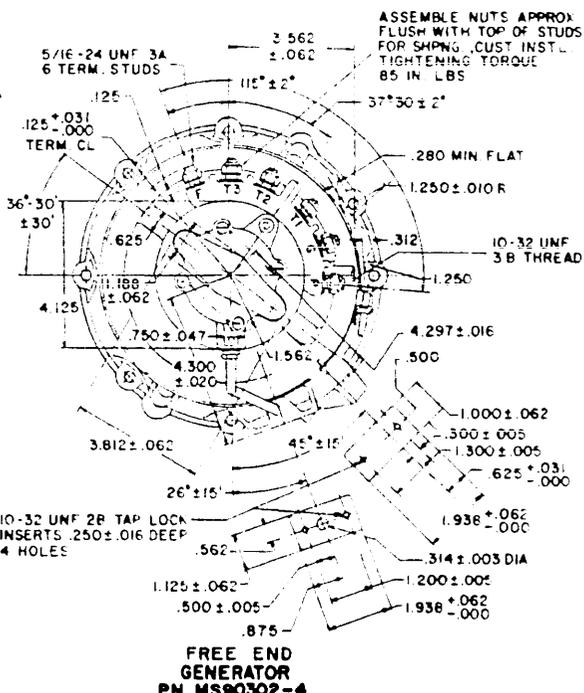
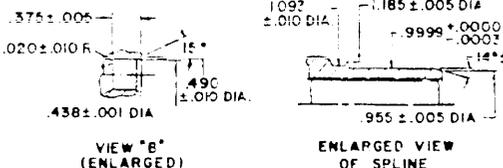
PREVIOUS EDITIONS OF THIS FORM ARE OBSOLETE. PROJECT NO. 6115-N429 PLATE NO. 23071

APPROVED 20 JULY 1964 REVISED ⓐ 11 JULY 1977 ⓑ 1 APRIL 1979

FED. SUP CLASS
6115



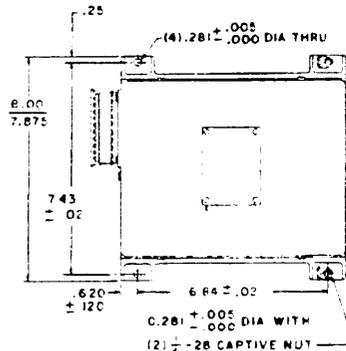
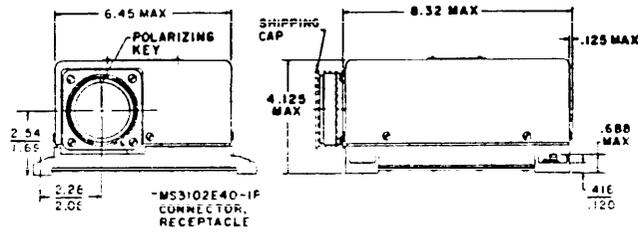
SPLINE DATA
 22 TEETH, 32/64 PITCH, 30° PRESSURE ANGLE, FLAT ROOT SIDE FIT, ROCKWELL 'C' 38-43, .667 PITCH DIA., 716^{+0.001}/_{0.000} ROOT DIA., .7125 MIN T I TOOTH FORM INSIDE THIS DIA., .656^{+0.005}/_{0.000} INSIDE DIA., .0490^{+0.002}/_{0.000} TOOTH WIDTH, CONCENTRIC WITH .9995^{+0.0000}/_{0.0003} DIA. WITHIN .003 TIR



This military standard is approved by NAVAL AIR SYSTEMS COMMAND, Department of the Navy and shall be used by this activity. All other military activities are required to employ this standard where suitable.

APPROVED 20 JULY 1964 REVISED (B) FOR CHANGES SEE SHEETS 1 THRU 9

P.A. NAVY - AS Other Cust	TITLE GENERATOR SYSTEM, ALTERNATING CURRENT, BRUSHLESS 30 KVA F-4 AIRCRAFT	MILITARY STANDARD MS90302(AS)
PROCUREMENT SPECIFICATION MIL-G-21480	SUPERSEDES:	SHEET 2 OF 9



GENERATOR CONTROL UNIT
PN MS90302-5
WEIGHT MAXIMUM = 8 LBS

GENERATOR DATA	
RATED VOLTAGE	120/208
RATED OUTPUT	40 KVA
PHASE	3
FREQUENCY	380-420 HZ
SPEED RANGE	7600-8400 RPM
MAX SPEED FOR REGULATION	9000 RPM
OVERSPEED	10000 RPM
RATED POWER FACTOR	0.75 LAG TO 1.0
EFFICIENCY MIN AT RATED LOAD	85%
MAX WEIGHT	50 LB
MAX OVERHUNG MOMENT	275 IN-LB
SHEAR	1300 ± 100 IN-LB

REQUIREMENTS

- THE AIRCRAFT MANUFACTURER SHALL ALLOW ADEQUATE CLEARANCE FOR INSTALLING AND REMOVING COMPONENTS.
- THE AIRCRAFT MANUFACTURER SHALL ALLOW CONNECTING LEAD LENGTH AND OIL LINE CONNECTION FOR THE LIMITING GENERATOR DIMENSIONS SHOWN ON THIS STANDARD.
- THE REQUIREMENTS OF MIL-G-21480 PERTAIN WITH THE FOLLOWING EXCEPTIONS:

DELETE THE FOLLOWING PARAGRAPHS:

3.4.2.2 THROUGH 3.4.2.8, 3.4.9.6.1, 3.4.9.6.1.1, 3.4.15, 3.4.15.1, 3.5.7.5, 4.4.2.1.1, 4.4.2.3.1, 4.5.6, 4.5.20.1, 4.5.20.2, 4.5.22.1 THROUGH 4.5.22.3, 4.5.22.3.1 THROUGH 4.5.24.1, 4.5.24.2, 4.5.24.3, 4.5.24.3.1 THROUGH 4.5.24.3.4, 4.5.26 THROUGH 4.5.33, 4.5.33.1, 4.5.33.2.

3.4.1.1 DELETE AND ADD: THIS SPECIFICATION COVERS THE REQUIREMENTS FOR A SYSTEM COMPRISED OF TWO 400 HZ GENERATORS AND GENERATOR CONTROLS.

3.4.1.1 DELETE AND ADD ENVIRONMENTAL REQUIREMENTS: THE SYSTEM SHALL MEET THE REQUIREMENTS OF MIL-E-81910 UNLESS OTHERWISE SPECIFIED BY THE DETAIL SPECIFICATION.

3.4.1.1 DELETE AND ADD TEMPERATURE AND ALTITUDE: THE GENERATORS SHALL FULLY SUPPORT THE SYSTEM WHEN OPERATING WITHIN THE AMBIENT TEMPERATURE-ALTITUDE RANGE OF FIGURE 1 OF MS90301. ALL OTHER SYSTEM COMPONENTS SHALL OPERATE CONTINUOUSLY WITHIN THE TEMPERATURE-ALTITUDE RANGE OF FIGURE 11 OF MS90301.

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APPROVED 20 JULY 1964 REVISED (B) FOR CHANGES SEE SHEETS 1 THRU 9

P.A. NAVY - AS Other Cust	TITLE GENERATOR SYSTEM, ALTERNATING CURRENT, BRUSHLESS 30 KVA F-4 AIRCRAFT	MILITARY STANDARD
		MS90302(AS)
PROCUREMENT SPECIFICATION MIL-G-21480	SUPERSEDES:	SHEET 3 OF 9

3.4.7 DELETE AND ADD: MANUAL SYSTEM CONTROL. THE MANUAL SYSTEM CONTROL SWITCHES SHALL PERFORM THE FOLLOWING FUNCTIONS:

ON - GENERATORS AUTOMATICALLY COME ON THE BUS AND PARALLEL (FOR PARALLEL SYSTEMS ONLY) WHEN THEIR ELECTRICAL CHARACTERISTICS ARE WITHIN PRESCRIBED LIMITS. GENERATOR WARNING LIGHTS "OFF" IF GENERATORS ARE ON THE BUS. GENERATOR WARNING LIGHTS "ON" IF GENERATOR LINE CONTACTORS ARE OPEN. BUS TIE CONTACTOR WARNING LIGHTS "OFF" IF GENERATORS ARE PARALLELED. BUS TIE CONTACTOR WARNING LIGHTS "ON" IF BUS TIE CONTACTOR IS OPEN. PROTECTIVE SYSTEM - OPERATIVE.

OFF-RESET - GENERATOR SYSTEMS ELECTRICALLY DEENERGIZED AND MAIN GENERATOR LINE CONTACTORS OPEN. GENERATOR WARNING LIGHTS "ON" WITH BOTH GENERATORS OFF. BUS TIE CONTACTOR WARNING LIGHT "ON" WITH BOTH GENERATORS OFF.

EXTERNAL ON - GENERATOR SYSTEMS ELECTRICALLY DEENERGIZED AND MAIN GENERATOR LINE CONTACTORS OPEN. GENERATOR WARNING LIGHTS "ON". EXTERNAL POWER CONTACTOR CLOSED. BUS TIE CONTACTOR CLOSED. BUS TIE CONTACTOR WARNING LIGHTS "OFF"

3.4.8 CHANGE "FIGURE 3" TO "FIGURE 1 OF THE DETAIL SPECIFICATION".

3.4.8.1 DELETE LAST SENTENCE AND ADD: DURING STEADY-STATE PARALLEL OPERATION, THE REACTIVE LOAD DEVIATION SHALL NOT EXCEED +2 KVAR FROM THE AVERAGE, AND THE REAL LOAD DEVIATION SHALL NOT EXCEED 3 KW. UNDER PARALLEL CONDITIONS THE DIFFERENCE IN REAL LOAD IS LIMITED TO 13.5 KW WITH A RETURN TO WITHIN 3 KW IN LESS THAN 2 SECONDS. THE BUS TIE CONTACTOR SHALL BE OPENED WHEN THE CURRENTS FROM THE T2 TERMINALS OF EACH GENERATOR DIFFER BY MORE THAN 45 AMPS FOR A PERIOD EXCEEDING 45 SECONDS.

3.4.8.2 DELETE LAST SENTENCE AND ADD: WHEN OPERATING IN PARALLEL, THE REACTIVE LOAD CARRIED BY ANY ONE SYSTEM DURING OVERLOAD SHALL NOT DEVIATE FROM THE AVERAGE BY MORE THAN +4 KVAR. THE REAL LOAD CARRIED BY ANY ONE SYSTEM DURING OVERLOAD SHALL NOT DEVIATE FROM THE AVERAGE BY MORE THAN +3 KW.

3.4.9.1 ADD: THE GENERATORS SHALL BE COMPATIBLE WITH THE CONSTANT SPEED DRIVES CONFORMING TO MS90301.

3.4.9.2 ADD: THE GENERATOR SYSTEM SHALL BE SO DESIGNED THAT UPON REMOVAL OF ANY CONNECTOR PLUG, THE ASSOCIATED GENERATOR AND GENERATOR CONTROL UNIT SHALL BE DEENERGIZED.

3.4.9.4 CHANGE "COUNTERCLOCKWISE" TO "CLOCKWISE".

3.4.9.6.2 DELETE AND ADD: LIQUID COOLING. THE GENERATOR SHALL OPERATE CONTINUOUSLY WITHIN SPECIFICATION LIMITS WHEN SUPPLIED WITH INLET OIL AT TEMPERATURES OF FROM -55°C TO 127°C, SHALL OPERATE FOR 5 MINUTES WHEN SUPPLIED OIL AT TEMPERATURES OF FROM 127°C TO 165°C, AND WHEN SUPPLIED NO OIL SHALL OPERATE FOR INTERVALS NOT EXCEEDING ONE MINUTE. ALL OTHER SYSTEM COMPONENTS FURNISHED UNDER THIS SPECIFICATION SHALL BE SELF COOLED AND SHALL OPERATE WITHIN THE TEMPERATURE-ALTITUDE LIMITS OF FIGURE 12, MS90301.

THE MAXIMUM COOLING OIL PRESSURE AT THE INLET PORT TO THE GENERATOR WITH RESPECT TO THE GENERATOR AMBIENT PRESSURE, IS 300 PSI AT OIL TEMPERATURES OF -55°C AND 150 PSI AT 127°C, MAXIMUM OIL PRESSURE, WITH RESPECT TO AMBIENT PRESSURE, AT ANY OTHER OIL TEMPERATURE IS DEFINED BY A STRAIGHT LINE THROUGH THESE TWO POINTS.

THE FLOW OF OIL AVAILABLE TO THE GENERATOR WILL VARY DIRECTLY AS THE VISCOSITY OF MIL-L-7808 OIL FROM NONE AT -55°C, TO 3.25 ± .25 GALLONS PER MINUTE (GPM) AT 44°C. FOR OIL TEMPERATURES OF FROM 44°C TO 100°C, A DIFFERENTIAL PRESSURE OF 50 ± 5 PSI WILL BE MAINTAINED ACROSS THE GENERATOR AT AN OIL FLOW OF 3.25 ± .25 GPM. AT OIL TEMPERATURES OF 100°C TO 165°C, THE DIFFERENTIAL OIL PRESSURE WILL BE MAINTAINED AT 55 ± 6 PSI OR THE OIL FLOW WILL BE MAINTAINED AT 3.5 GPM, MINIMUM, WHICHEVER OCCURS FIRST.

OIL LEAKAGE FROM THE SYSTEM SHALL NOT EXCEED 2 CC PER HOUR UNDER ANY OF THE OPERATING OR STATIC CONDITIONS COVERED IN THIS SPECIFICATION.

3.4.9.7 DELETE AND ADD: LIFE OF GENERATOR. THE GENERATORS SHALL HAVE A MINIMUM OF 1000 HOURS TIME PRIOR TO FIRST OVERHAUL.

3.4.10.3 DELETE AND ADD: LIFE. ALL SYSTEM COMPONENTS EXCEPT GENERATORS SHALL EACH HAVE A 2500 HOUR MINIMUM SERVICE LIFE WITHOUT OVERHAUL OR REPAIR.

3.4.13 DELETE AND ADD: IDENTIFICATION OF PRODUCT. A NAMEPLATE CONFORMING TO MIL-P-15024, TYPE A, B, OR H PERMANENTLY AND LEGIBLY MARKED AS REQUIRED BY MIL-STD-130 SHALL BE SECURELY ATTACHED TO EACH SYSTEM COMPONENT. THE NAMEPLATE SHALL CONTAIN AT LEAST THE FOLLOWING INFORMATION: NAME OF COMPONENT (AS SHOWN ON MS90302), FEDERAL STOCK NUMBER, CONTRACT NUMBER, CONTRACTOR'S NAME OR TRADEMARK, CONTRACTOR'S PART NUMBER, AND CONTRACTOR'S SERIAL NUMBER.

3.4.17 DELETE AND ADD: RELIABILITY. THE SYSTEM MTBF (MEAN TIME BETWEEN FAILURES) SHALL NOT BE LESS THAN 1000 HOURS.

3.5.1 CHANGE "FIGURE 3" TO "FIGURE 1 OF THE DETAIL SPECIFICATION".

3.5.2.1 DELETE AND ADD: THE VOLTAGE MODULATION SHALL NOT EXCEED 0.75%.

3.5.5 CHANGE "5 AMPS MINIMUM CONTINUOUS CAPACITY" TO "2 AMPS MINIMUM CONTINUOUS CAPACITY".

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APPROVED 20 JULY 1964 REVISED (B) FOR CHANGES SEE SHEETS 1 THRU 9

P.A. NAVY - AS Other Cust	TITLE	MILITARY STANDARD
	GENERATOR SYSTEM, ALTERNATING CURRENT, BRUSHLESS 30 KVA F-4 AIRCRAFT	MS90302(AS)
PROCUREMENT SPECIFICATION MIL-G-21480	SUPERSEDES:	SHEET 4 OF 9

ADD: DC CONTROL POWER SHALL BE AT LEAST 50 WATTS PER GENERATOR IN EXCESS OF REQUIREMENTS OF GENERATING SYSTEM COMPONENTS DESCRIBED IN THE DETAIL SPECIFICATION. WHERE A PERMANENT MAGNET GENERATOR IS USED FOR INTEGRAL CONTROL POWER, IT SHALL RECOVER TO NORMAL VOLTAGE AFTER A SHORT CIRCUIT UNLESS IT CAN BE REMAGNETIZED WITHOUT DISASSEMBLY OF THE GENERATOR.

3.5.7.1 ADD: WHEN OPERATING IN PARALLEL, THE GENERATING SYSTEM SHALL CAUSE AN OVER-EXCITED OR UNDER-EXCITED GENERATOR AND ITS LINE CONTACTOR TO BE DEENERGIZED WITHOUT INTERRUPTION OF POWER TO EITHER LOAD BUS. THIS PROTECTION SHALL BE COORDINATED WITH THE REACTIVE LOAD DIVISION CIRCUIT WITH APPROPRIATE TIME DELAYS TO PREVENT NUISANCE TRIPS OR LOSS OF UNAFFECTED GENERATOR DURING TRANSIENTS OR FAULT CONDITIONS.

3.5.7.2 DELETE AND ADD: OVERVOLTAGE. OVERVOLTAGE PROTECTION SHALL BE PROVIDED BY A STATIC ELEMENT WHICH FUNCTIONS TO DISCONNECT THE SYSTEM FROM THE LOAD BUS AND DEENERGIZE THE GENERATOR BEFORE THE VOLTAGE AT THE POINT OF REGULATION EXCEEDS THE LIMITS DEFINED BY THE MAXIMUM OVERVOLTAGE CURVE OF FIGURE 1 OF THE DETAIL SPECIFICATION. MANUAL RESET OF THIS PROTECTIVE ELEMENT SHALL BE POSSIBLE BY PUTTING THE GENERATOR CONTROL SWITCH (SEE PARAGRAPH 3.4.7) IN THE "OFF RESET" POSITION (THEN TO "ON") IF THE OUTPUT VOLTAGE OF THE SYSTEM IS LESS THAN THAT DEFINED BY THE MAXIMUM OVERVOLTAGE CURVE OF FIGURE 1 OF THE DETAIL SPECIFICATION. AUTOMATIC RESET OF THIS PROTECTIVE ELEMENT SHALL OCCUR WHEN THE SYSTEM IS SHUT DOWN.

3.5.7.3 DELETE AND ADD: UNDERVOLTAGE. EACH GENERATOR CONTROL UNIT SHALL CONTAIN AN UNDERVOLTAGE PROTECTIVE DEVICE WHICH FUNCTIONS TO OPEN THE ASSOCIATED LINE CONTACTOR AND DEENERGIZE THE GENERATOR IN A PERIOD OF 3 TO 5 SECONDS WHEN THE VOLTAGE OF ANY PHASE IS LESS THAN 97 VOLTS. THERE SHALL BE NO PROTECTIVE FUNCTION WHEN ALL PHASE VOLTAGES EXCEED 107 VOLTS. DURING SYSTEM OPERATION WITH GENERATOR PARALLELED, THE BUS TIE CONTACTOR SHALL BE OPENED UNDER THE ABOVE VOLTAGE CONDITIONS IN A PERIOD OF 2 ± 1 SECONDS.

3.5.7.4 DELETE AND ADD: UNDERFREQUENCY. UNDERFREQUENCY PROTECTION IS PROVIDED BY AN UNDERSPEED SWITCH IN THE CONSTANT SPEED DRIVE. THIS SWITCH WILL OPERATE AT A FREQUENCY OF 375 ± 5 HZ.

3.5.7.6 DELETE AND ADD: FEEDER FAULT. DURING SINGLE GENERATOR OPERATION THE GENERATOR LINE CONTACTOR SHALL BE OPENED IN 3.0 TO 5.0 SECONDS AND THE GENERATOR DEENERGIZED WHEN THE LINE-GROUND FAULT CURRENT IN ANY GENERATOR FEEDER PHASE EXCEEDS 2 PER UNIT. DURING PARALLEL OPERATION, THE BUS TIE CONTACTOR SHALL BE OPENED IN 2 ± 1 SECONDS WHEN THE LINE-GROUND FAULT CURRENT IN ANY PHASE EXCEEDS 2 PER UNIT SINGLE PHASE.

3.5.8 DELETE AND ADD: ELECTROMAGNETIC INTERFERENCE. THE SYSTEM SHALL MEET THE REQUIREMENTS OF MIL-E-81910 FOR BOTH BROAD BAND CONDUCTED AND RADIATED EMISSIONS.

4.2.1.1 ADD: QUALIFICATION TESTS SHALL BE SUPPLEMENTED WITH A MINIMUM 100 HOUR FAILURE FREE FLIGHT TEST BEFORE CONSIDERATION IS GIVEN TO INCORPORATING THE ITEM ON THE QUALIFIED PRODUCTS LIST.

4.4 ADD: ALL TESTS ARE TO BE CONDUCTED AT AN INPUT OIL TEMPERATURE TO THE GENERATOR OF 127 ± 390 UNLESS OTHERWISE SPECIFIED.

4.5.3.1 ADD: PARTS (A) AND (B) SHALL BE CONDUCTED WITH A GENERATOR AND ASSOCIATED CONTROL COMPONENTS OPERATING SINGLY AND THEN REPEATED WITH THE COMPLETE SYSTEM. CHANGE ALL REFERENCE FROM FIGURE 3 TO FIGURE 1 OF THE DETAIL SPECIFICATION. UNDER PART (C), OPERATE ONE GENERATOR AND ASSOCIATED CONTROL COMPONENTS SUPPLYING 38 KVA AT A POWER FACTOR OF 0.75 LAGGING FOR 25 ONE-HOUR PERIODS AND AT UNITY POWER FACTOR FOR 50 ONE-HOUR PERIODS. AT THE END OF EACH ONE-HOUR PERIOD, THE LOAD IS TO BE REDUCED TO 5 KVA FOR 5 MINUTES. TESTS UNDER (C) ARE TO BE CONDUCTED FOR QUALIFICATION ONLY.

4.5.3.2 DELETE AND ADD: ACCEPTANCE TESTS. EACH GENERATOR CONTROL UNIT SUBMITTED FOR ACCEPTANCE TEST SHALL BE TESTED FOR VOLTAGE REGULATION AT 400 HZ, NO LOAD AND FULL LOAD (REAL OR SIMULATED). VOLTAGE LIMITS SHALL CONFORM TO THE LIMITS OF $115V \pm 1.0\%$ AND THE VOLTAGE MODULATION SHALL NOT EXCEED .75%.

4.5.5 DELETE PART (B) AND ADD: CIRCUITS OVER 50V: 1000 VOLTS RMS FOR 1 MINUTE.

4.5.8 ADD: THIS TEST SHALL BE CONDUCTED ON A GENERATOR AND ASSOCIATED CONTROL COMPONENTS OPERATING SINGLY AND REPEATED WITH THE COMPLETE SYSTEM OPERATING IN PARALLEL.

4.5.10 ADD: THIS TEST SHALL BE CONDUCTED ON A GENERATOR AND ASSOCIATED CONTROL COMPONENTS OPERATING SINGLY AND REPEATED WITH THE COMPLETE SYSTEM OPERATING IN PARALLEL.

4.5.12 DELETE AND ADD: ELECTROMAGNETIC INTERFERENCE. THE SYSTEM SHALL BE SUBJECTED TO AN ELECTROMAGNETIC INTERFERENCE TEST IN ACCORDANCE WITH MIL-E-81910.

4.5.14 DELETE AND ADD: ENDURANCE. THE SYSTEM OPERATING IN PARALLEL SHALL BE TESTED IN ACCORDANCE WITH THE ENDURANCE LOAD SCHEDULE OF MS90301.

4.5.17 ADD: THESE TESTS SHALL BE CONDUCTED ON A GENERATOR AND ASSOCIATED CONTROL COMPONENTS OPERATING SINGLY AND REPEATED WITH THE COMPLETE SYSTEM OPERATING IN PARALLEL.

4.5.18 ADD: THESE TESTS SHALL BE CONDUCTED ON A GENERATOR AND ASSOCIATED CONTROL COMPONENTS OPERATING SINGLY AND REPEATED WITH THE COMPLETE SYSTEM OPERATING IN PARALLEL.

THIS MILITARY STANDARD IS APPROVED BY SEVERAL AIR SYSTEMS COMMANDS. Department of the Navy and should be used by contractors. All other military activities are required to comply. This standard where suitable.

APPROVED 20 JULY 1964 REVISED (B) FOR CHANGES SEE SHEETS 1 THRU 9

P.A. NAVY - AS Other Cust	TITLE	GENERATOR SYSTEM, ALTERNATING CURRENT, BRUSHLESS 30 KVA F-4 AIRCRAFT	MILITARY STANDARD
			MS90302(AS)
PROCUREMENT SPECIFICATION MIL-G-21480	SUPERSEDES:		SHEET 5 OF 9

FED. SUP CLASS
6115

4.5.20 DELETE AND ADD: SALT SPRAY. THE GENERATOR CONTROL UNIT, JUNCTION BOX, AND GENERATOR TERMINAL BLOCK SHALL BE SUBJECTED TO A SALT FOG TEST IN ACCORDANCE WITH MIL-E-81910. AT THE COMPLETION OF THIS TEST THE JUNCTION BOX AND GENERATOR TERMINAL BLOCK SHALL BE INSPECTED FOR CORROSION AND DISTORTION. THE GENERATOR CONTROL UNIT SHALL SUCCESSFULLY DEMONSTRATE ITS BUILDUP CHARACTERISTICS, THE EFFECT OF APPLICATION AND REMOVAL OF RATED AND 200% LOAD, AND PROTECTIVE FUNCTIONS.

4.5.21 DELETE AND ADD: FUNGUS RESISTANCE. SYSTEM COMPONENTS SHALL BE SUBJECTED TO A FUNGUS TEST IN ACCORDANCE WITH MIL-E-81910, WITH THE INSTALLATION INSTRUCTIONS AND MOUNTING NUTS ATTACHED. AT THE COMPLETION OF THIS TEST THE UNIT SHALL SUCCESSFULLY DEMONSTRATE ITS BUILDUP CHARACTERISTICS, THE EFFECT OF APPLICATION AND REMOVAL OF RATED AND 200% LOAD, AND PROTECTIVE FUNCTIONS. MOUNTING NUTS ARE TO BE UNAFFECTED AND THE PACKAGE HOLDING THE NUTS SUITABLE FOR SHIPMENT. INSTRUCTIONS ARE TO BE LEGIBLE.

4.5.22 DELETE AND ADD: SAND AND DUST. SYSTEM COMPONENTS SHALL BE SUBJECTED TO A SAND AND DUST TEST IN ACCORDANCE WITH MIL-E-81910. AT THE COMPLETION OF THIS TEST THE UNIT SHALL SUCCESSFULLY DEMONSTRATE ITS BUILDUP CHARACTERISTICS, THE EFFECT OF APPLICATION AND REMOVAL OF RATED AND 200% LOAD, AND PROTECTIVE FUNCTIONS.

4.5.22.1.1 DELETE AND ADD: GENERATOR. THE GENERATOR SHALL BE SUBJECTED TO A VIBRATION TEST IN ACCORDANCE WITH MIL-E-81910, EXCEPT THAT THE AMPLITUDE OF VIBRATION MONITORED AT THE ANTIDRIVE END OF THE GENERATOR DURING THE MAIN BENDING MODE SHALL BE LIMITED TO 20 G's BUT THE VIBRATION INPUT SHALL NOT BE LOWERED BELOW 5G's. AT THE COMPLETION OF THIS TEST THE UNIT SHALL SUCCESSFULLY DEMONSTRATE ITS BUILDUP CHARACTERISTICS AND THE EFFECT OF APPLICATION AND REMOVAL OF RATED AND 200% LOAD.

4.5.24 DELETE AND ADD: SHOCK. CONTROL COMPONENTS SHALL BE SUBJECTED TO A SHOCK TEST IN ACCORDANCE WITH MIL-E-81910. AT THE COMPLETION OF PROCEDURE I, THE UNIT SHALL SUCCESSFULLY DEMONSTRATE ITS BUILDUP CHARACTERISTICS, THE EFFECT OF APPLICATION AND REMOVAL OF RATED AND 200% LOAD, AND PROTECTIVE FUNCTIONS. THERE SHALL BE NO FAILURE OF THE MOUNTING ATTACHMENTS AND THE TEST ITEM SHALL REMAIN IN PLACE AND NOT CREATE A HAZARD DURING PROCEDURE III.

NOTES:

- COMPONENTS ENCLOSED IN DOTTED LINES ARE SHOWN FOR INTER-CONNECTIONS ONLY AND ARE NOT FURNISHED UNDER THIS DRAWING.
- DIMENSIONS IN INCHES. UNLESS OTHERWISE SPECIFIED, TOLERANCES: LINEAR 0.030, ANGULAR $\pm 1^\circ$.

ITEM	PART NUMBER
COMPLETE SYSTEM (CONSISTS OF TWO GENERATORS, AND TWO GENERATOR CONTROL UNITS) (SPLIT SYSTEM)	MS90302-1
GENERATOR	MS90302-3
GENERATOR CONTROL UNIT	MS90302-5
COMPLETE SYSTEM (CONSISTS OF TWO GENERATORS, AND TWO GENERATOR CONTROL UNITS) (FOR AIR FORCE USE) (PARALLEL SYSTEM)	MS90302-2
GENERATOR (FOR AIR FORCE USE)	MS90302-4
GENERATOR CONTROL UNIT (FOR AIR FORCE USE)	MS90302-6

FOR DESIGN FEATURE PURPOSES, THIS STANDARD TAKES PRECEDENCE OVER PROCUREMENT DOCUMENTS REFERENCED HEREIN. REFERENCED DOCUMENTS SHALL BE OF THE ISSUE IN EFFECT ON DATE OF INVITATIONS FOR BID.

This military standard is approved by NAVAL AIR SYSTEMS COMMAND, Department of the Navy and shall be used by that activity. All other military activities are required to employ this standard where suitable.

APPROVED 20 JULY 1964 REVISED (B) FOR CHANGES SEE SHEETS 1 THRU 9

P.A. NAVY - AS Other Cust	TITLE GENERATOR SYSTEM, ALTERNATING CURRENT, BRUSHLESS 30 KVA F-4 AIRCRAFT	MILITARY STANDARD
		MS90302(AS)
PROCUREMENT SPECIFICATION MIL-G-21480	SUPERSEDES:	SHEET 6 OF 9

DD FORM 672-1 (Limited coordination)
1 MAR 72

PREVIOUS EDITIONS OF THIS FORM ARE OBSOLETE.

PLATE NO. 23071

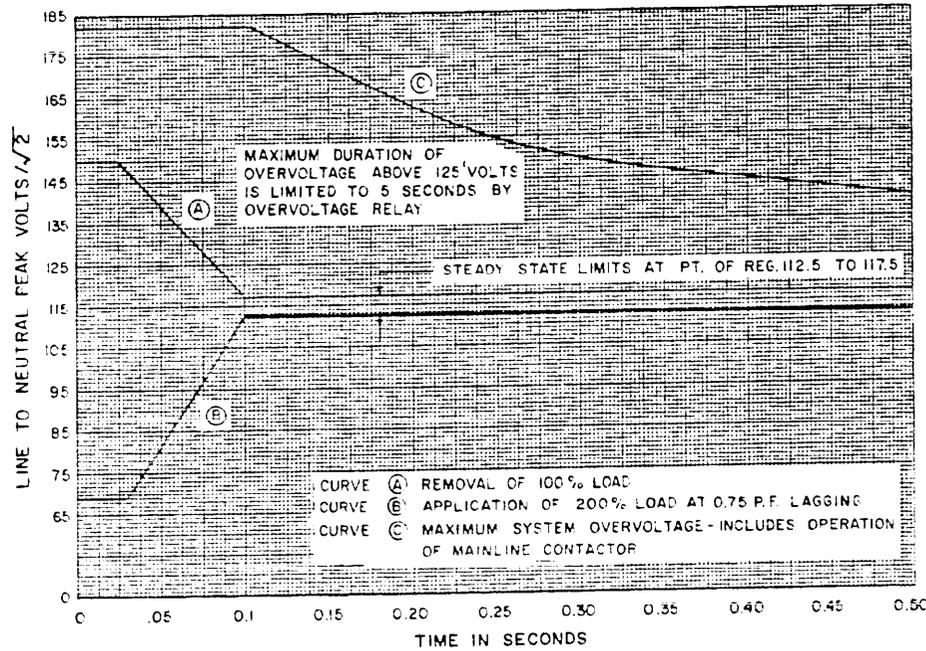


FIGURE 1 TRANSIENT, STEADY STATE AND OVERVOLTAGE LIMITS

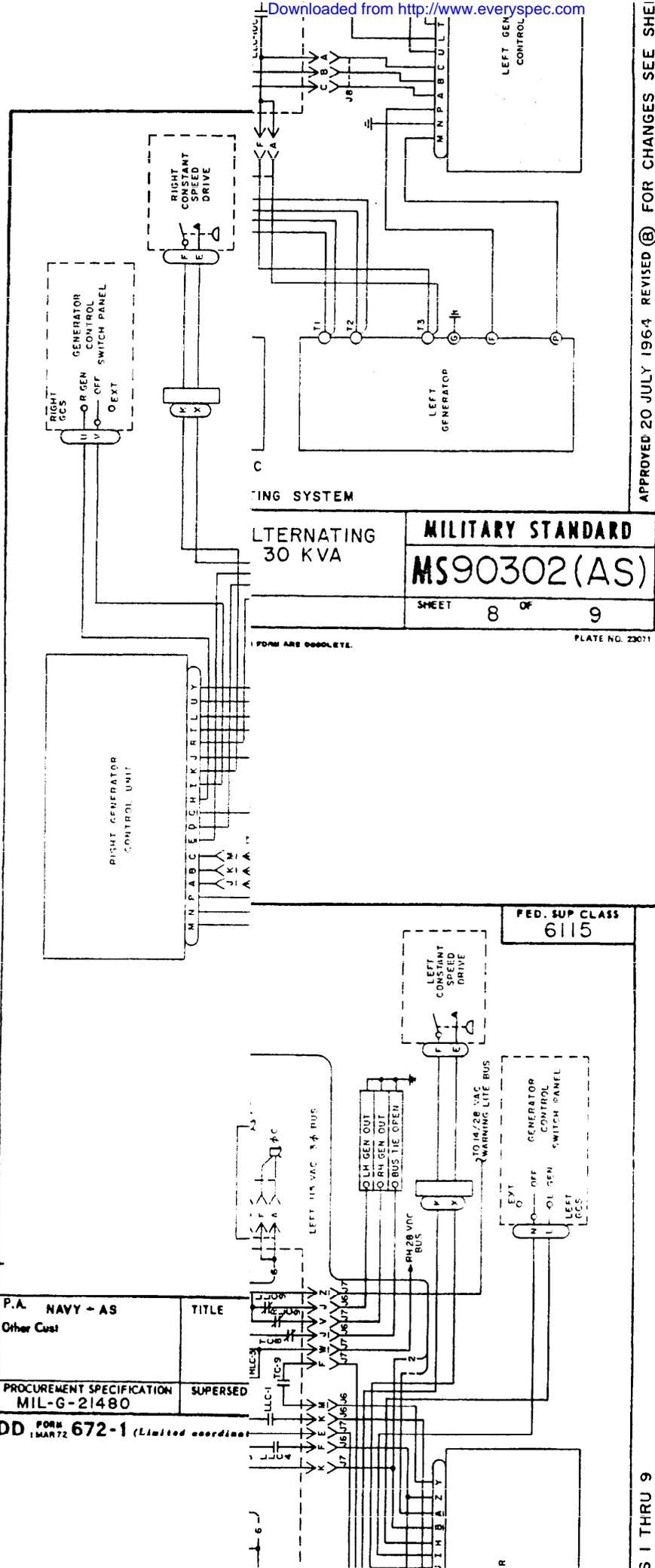
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APPROVED 20 JULY 1964 REVISED (B) FOR CHANGES SEE SHEETS 1 THRU 9

P.A. NAVY - AS Other Cust	TITLE GENERATOR SYSTEM, ALTERNATING CURRENT, BRUSHLESS 30KVA F-4 AIRCRAFT	MILITARY STANDARD
		MS90302(AS)
PROCUREMENT SPECIFICATION MIL-G-21480	SUPERSEDES:	SHEET 7 OF 9

This military standard is approved by NAVAL AIR SYSTEMS COMMAND, Department of the Navy and shall be used by that activity. All other military activities are required to employ this standard where suitable.

P.A. NAVY - AS
Other Cust
PROCUREMENT SPECIFICATION MIL-G-21480
SUPERSED
DD FORM 672-1 (Limited edition)
1 MAR 72



APPROVED 20 JULY 1964 REVISED (B) FOR CHANGES SEE SHEET

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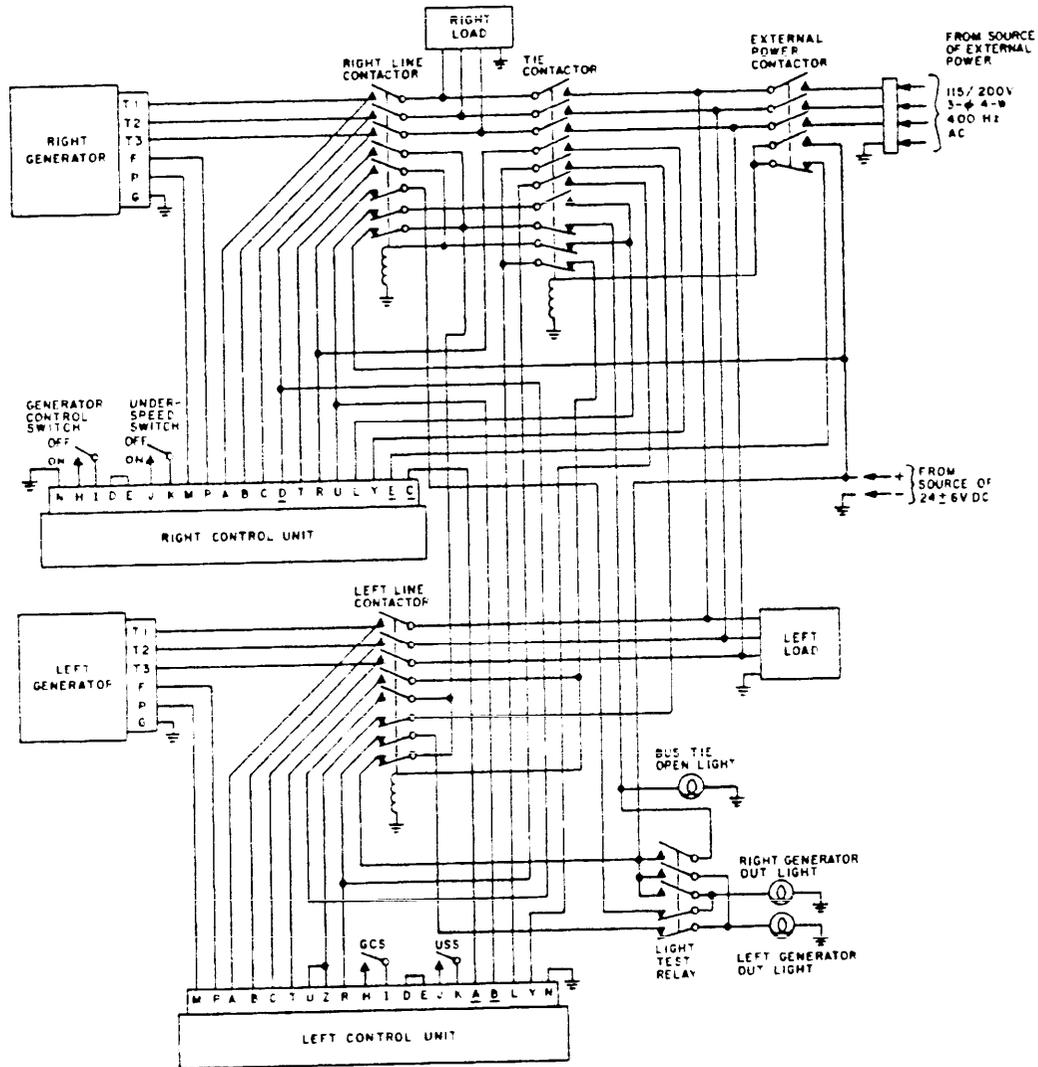
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APPROVED 20 JULY 1964 REVISED (B) FOR CHANGES SEE SHEETS 1 THRU 9

DARD (AS)



WIRING SCHEMATIC
FOR MS90302-2
ELECTRICAL POWER GENERATING SYSTEM

This military standard is approved by NAVAL AIR SYSTEMS Command, Department of the Navy and available only by that activity. All other military activities are required to employ this standard where applicable.

P.A. NAVY - AS
Other Cust

TITLE
GENERATOR SYSTEM, ALTERNATING
CURRENT, BRUSHLESS 30 KVA
F-4 AIRCRAFT

MILITARY STANDARD
MS90302(AS)

PROCUREMENT SPECIFICATION
MIL-G-21480

SUPERSEDES:

SHEET 9 OF 9